

REMARKS

The Official Action mailed October 31, 2007, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Filed concurrently herewith is a *Request for Continued Examination*. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on November 15, 2001; and September 20, 2002.

A further Information Disclosure Statement is submitted herewith and consideration of this Information Disclosure Statement is respectfully requested.

Claims 1-5 and 7-28 were pending in the present application prior to the above amendment. Independent claims 1-5, 24 and 27 have been amended to better recite the features of the present invention; and new dependent claims 29 and 30 have been added to recite additional protection to which the Applicant is entitled. The Applicant notes with appreciation the allowance of claims 2-5, 7-18 and 20-23 (Box 5, page 10, Paper No. 20071028). Accordingly, claims 1-5 and 7-30 are now pending in the present application, of which claims 1-5, 24 and 27 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 2 of the Official Action rejects claims 24-28 under 35 U.S.C. § 112, first paragraph, asserting that "the phrase 'the second interlayer insulating film is 1/5 to 1/50 thinner than a total thickness of the first interlayer insulating film and the second interlayer insulating film' is not described in the original specification" (page 2, *Id.*). In response, independent claims 24 and 27 have been amended to recite "a thickness of the second interlayer insulating film is 1/5 to 1/50 of a total thickness of the first interlayer insulating film and the second interlayer insulating film," which is supported in the present specification, for example, by page 4, lines 9-16.

The Applicant respectfully submits that amended claims 24 and 27, when read in light of the specification, are adequately described and supported in the specification. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112 are in order and respectfully requested.

Paragraph 4 of the Official Action rejects claim 1 as anticipated by JP 62-274729 to Katami. The Applicant respectfully traverses the rejection because the Official Action has not established an anticipation rejection.

As stated in MPEP § 2131, to establish an anticipation rejection, each and every element as set forth in the claim must be described either expressly or inherently in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Applicant respectfully submits that an anticipation rejection cannot be maintained against the independent claims of the present application. Independent claims 1 already recites forming a second mask and etching the lower layer using the second mask. Also, claim 1 has been amended to recite that a second mask is different from a first mask. For the reasons provided below, the Applicant respectfully submits that Katami does not teach the above-referenced features of the present invention, either explicitly or inherently.

The Official Action asserts that "Katami discloses a method for forming a semiconductor device, which comprises ... etching the upper layer 106 of the interlayer insulator using a first mask 107, wherein a lower layer 105 of the interlayer insulator is used as an etching stopper (see figs. 1A-1G); forming a second mask 107 to cover a portion of the laser layer of the interlayer insulator, which is exposed by the etching step (see figs. 1A-1G; specifically noting the overlap of the photoresist 107, in figs. 1e and 1F, due to the isotropic etchant) ..." (page 3, Paper No. 20071028). The Applicant respectfully disagrees and traverses the assertions in the Official Action.

The Official Action appears to rely on the photoresist 107 of Katami to teach both the first mask in the step of etching the upper layer and the second mask in the step of

forming the second mask. The Official Action may be relying on the rationale presented in the Official Action mailed November 3, 2003, which states the following at page 15, ¶2:

... [M]ask layer (107) may act as a first and second mask because Kitami specifically chose the first etchant to be comprised by an isotropic material which causes mask layer (107) to act as a mask with a different defined width [than] when the second anisotropic etchant is used to remove the lower layer. The isotropic etchant removed a larger area of the upper layer than defined by the width dimension of the mask layer. Consequently, mask layer (107) then overhung a portion of the lower layer that was then etched with an anisotropic etchant, thereby, effectively forcing mask layer (107) to act as a second mask layer with a different (i.e. – smaller) dimension width. Summarily, the isotropic etchant used to remove the upper layer creates a second mask layer out of the first mask layer. ...

The Applicant respectfully disagrees and traverses the assertions in the Official Action.

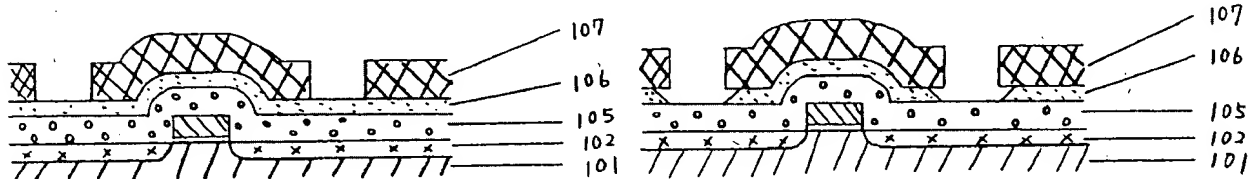


Figure 1(D) of Kitami

Figure 1(E) of Kitami

The photoresist 107 of Kitami is used as a mask in isotropic etching and anisotropic etching. The Official Action asserts that the mask layer 107 may act as a first and second mask; however, the etchant is changed in the etching step of the upper layer from the etchant of the etching step of the lower layer. Also, the photoresist 107 is not changed between the etching step of the upper layer and the etching step of the lower layer. That is, the difference between the openings formed by the etching steps of the upper layer and the lower layer is caused by the change of etchant and is not caused by the change of mask. Thus, Katami only discloses that etching steps using different etchants and the same photoresist 107. However, Katami does not teach

steps of forming a second mask and etching a lower layer using a second mask, either explicitly or inherently.

The Applicant respectfully submits that the arguments above are sufficient to distinguish the present invention from Katami. However, in order to further emphasize the difference between the present invention and Katami, the Applicant has amended claim 1 to recite that a first mask is different from a second mask. The Applicant respectfully submits that Katami does not teach the above-referenced features, either explicitly or inherently.

Since Katami does not teach all the elements of the independent claims, either explicitly or inherently, an anticipation rejection cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 are in order and respectfully requested.

Paragraph 7 of the Official Action rejects claims 24 and 25 as obvious based on Katami. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the

art.” In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended. Independent claim 24 has been amended to recite “forming a wiring line; forming a first interlayer insulating film over the thin film transistor and the wiring line; ... forming a first opening and a second opening in the second interlayer insulating film ...; forming a third opening in the first interlayer insulating film ...; and forming an electrode in the second opening over the wiring line with the first interlayer insulating film interposed therebetween.” These features are supported in the present specification, for example, by Figures 1A to 1E. Also, as noted above, claim 24 has been amended to recite that a thickness of the second interlayer insulating film is 1/5 to 1/50 of a total thickness of the first interlayer insulating film and the second interlayer insulating film. In the present invention, the thicknesses of the interlayer insulating films are effective to reduce an area of the capacitor (see page 4, lines 9-16). Katami does not teach or suggest the above-referenced features of the present invention.

Since Katami does not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 9 of the Official Action rejects claims 24 and 26 as obvious based on the combination of U.S. Patent No. 5,635,423 to Huang and U.S. Patent No. 5,063,378 to Roach. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended. As noted in detail above, independent

claim 24 has been amended to recite "forming a wiring line; forming a first interlayer insulating film over the thin film transistor and the wiring line; ... forming a first opening and a second opening in the second interlayer insulating film ...; forming a third opening in the first interlayer insulating film ...; and forming an electrode in the second opening over the wiring line with the first interlayer insulating film interposed therebetween, wherein a thickness of the second interlayer insulating film is 1/5 to 1/50 of a total thickness of the first interlayer insulating film and the second interlayer insulating film." The Applicant respectfully submits that Huang and Roach, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

Since Huang and Roach do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 10 of the Official Action rejects claims 19 and 26-28 as obvious based on the combination of Katami and Roach. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

With respect to dependent claims 19 and 26, please incorporate the arguments above with respect to the deficiencies in Katami. Roach does not cure the deficiencies in Katami. The Official Action relies on Roach to allegedly teach "etching contact vias through a silicon oxide/silicon nitride insulation layer to contact a TFT that is connected to a pixel electrode" (page 7, Paper No. 20071028). However, Katami and Roach, either alone or in combination, do not teach or suggest the above-referenced features of independent claims 1 and 24 or that Katami should be modified to include such features.

Independent claim 27 has been amended to recite "forming a wiring line over the insulating surface; ... first etching the second insulating film to form a first opening and a

second opening wherein the first insulating film functions as an etching stopper; second etching a portion of the first insulating film and the gate insulating film in accordance with the first opening of the second insulating film, thereby, exposing a surface of the semiconductor layer; and forming an electrode in the second opening over the wiring line with the first insulating film interposed therebetween, wherein a thickness of the second interlayer insulating film is 1/5 to 1/50 of a total thickness of the first interlayer insulating film and the second interlayer insulating film.” The Applicant respectfully submits that Katami and Roach, either alone or in combination, do not teach or suggest the above-referenced features.

Since Katami and Roach do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

At this opportunity, allowed independent claims 2-4 have been amended for clarity. Specifically, claims 2-4 have been amended to recite “wherein the lower layer of the interlayer insulator is used as an etching stopper.” Also, in the last line of claim 4, “the contact hole” has been changed to “the second contact hole” for consistency.

New dependent claims 29 and 30 have been added to recite additional protection to which the Applicant is entitled. The features of claims 29 and 30 are supported in the present specification, for example, by Figures 1C and 1D. For the reasons stated above, the Applicant respectfully submits that new claims 29 and 30 are in condition for allowance.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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